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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/017,291	12/18/2001	Rene Demellayer	13188	4066

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EXAMINER

WILKINS III, HARRY D

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 01/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/017,291	Applicant(s) DEMELLAYER, RENE	
	Examiner Harry D Wilkins, III	Art Unit 1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2003 and 18 November 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

### DETAILED ACTION

1. The rejections under 35 USC 103 based on Frei in view of Applicant's admission and Barmatz et al have been withdrawn in view of Applicant's remarks regarding the fact that Barmatz et al do not teach an ultrasonic method of separation.

#### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4, 6-7, 9-14, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frei (CH 670785) in view of Applicant's admission of prior art and further in view of Schram (US 4,743,361).

Frei teaches (see abstract and figure 5) an electro-erosion machine (44) with an electrode (44) and a piece (42) where the machining liquid (43) is made of a dielectric liquid containing particles which facilitate electro-erosion. Frei teaches (see partial translation submitted by Applicant) that there are means (30) for cleaning and regenerating the machining liquid.

Frei does not teach that there was a second-type of particles in the liquid as contamination and that the contaminant particles were separated from the machining liquid by means of an ultrasonic decantation device.

Applicant admits as prior art (see page 1, lines 17-25) that the machining liquid of the prior art apparatus of Frei was contaminated by particles of metallic spherules of the

material of the piece and of the electrode, as claimed. The contamination particles (as described by Applicant at page 5, lines 13-17) have a higher density than the first particles. Applicant's admission also describes that the major problem was in properly filtrating and purifying the machining liquid.

Therefore, the contaminated machining liquid of Frei contains the second particles as claimed.

Schram teaches (see col. 1, lines 4-11) an invention that relates to the manipulation of particulate matter in a fluid medium by the use of ultrasonic wave energy, and in particular for the separation of particles, including the segregation of dissimilar particles from a mixture of particles in a fluid for concentrating particular types of particle. Schram also teaches (see col. 7, lines 11-21) that differences in particle shapes, sizes and densities led to the separation of different particles.

Therefore, it would have been obvious to one of ordinary skill in the art to have applied the ultrasonic device of Schram for the separation means of Frei because the device of Schram provided separation of a variety of particles suspended in a liquid based upon various factors of the particles including shape, size and density for the separation of the machining liquid of Frei.

Regarding claims 2 and 12, Frei teaches (see figure 5) that there are supply means for supplying contaminated machining liquid into the filtration module (30) and at least one opening for discharging the purified machining liquid.

Regarding claims 3 and 13, Applicant admits as prior art (see page 1, lines 21-25) that when the dielectric liquid is carbonated, there exist third particles of colloidal

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carbon. It would have been obvious to one of ordinary skill in the art to have added a second separation device of Schram to separate the first particles from the third particles to purify the machining liquid even further. Since the device of Schram separates by decanting the particles based on size, shape and density, it would have been within the expected skill of a routineer in the art to have the first particles, which were denser than the colloidal carbon would be decanted as claimed. Since this second device would be placed in line after the first device, its inlet would be connected to the outlet of the first device.

Regarding claims 4 and 14, the outlet of the second device would contain the dielectric liquid and the colloidal carbon particles. It would have been obvious to one of ordinary skill in the art to have removed the colloidal carbon by any conventional means, such as by filtering, as admitted by Applicant at page 2, lines 1-9 because the filtering of the water would have retained all of the colloidal carbon. Schram does not expressly teach that the largest/densest particles were decanted to the bottom of the chamber. However, based on the theory of gravity, one of ordinary skill in the art would have expected the largest/densest particles to be located at the lowest possible position, i.e.-the bottom of the chamber. Thus, the largest/densest particles would have been removed from the bottom of the chamber. Since these are the particles that are desired to be recycled (the additive to enhance electro-erosion), it would have been obvious to one of ordinary skill in the art to have extracted these particles from the second device and transported them to the filtered dielectric liquid in a conventional

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mixing receptacle to obtain a purified recyclable dielectric liquid with the additive first particles.

Regarding claims 6, 9, 10, 16 and 17, the power consumption of the two ultrasonic generators, when optimized for decanting the second particles in the first device and the first particles in the second device, would have been expected to fall within the claimed ranges.

Regarding claim 7, see above regarding claims 1-4.

Regarding claim 11, see above regarding claim 1.

4. Claims 5, 8 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frei (CH 670785) in view of Applicant's admission of prior art and further in view of Schram (US 4,743,361) as applied to claims 1-4 and 6 above, and further in view of Lee (US 4,701,260).

Frei in view of Applicant's admission of prior art and Schram do not teach the extraction and transport means as claimed.

Lee et al teach (see abstract and figure 1) convention means for the extraction and transport of particulates from a liquid suspension that included a conveyor belt arranged at the bottom of the vat and extending out to dump the particulate into a second container.

Therefore, it would have been obvious to one of ordinary skill in the art to have used the conventional extraction and transport means of Lee in the process of Frei in view of Applicant's admission and Schram to remove the first particles from the second

device because the means of Lee provide (see col. 1, lines 44-47) efficient removal and drying of the particulate on the bottom of the vessel.

***Response to Arguments***

5. Applicant's arguments with respect to claims 1-17 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

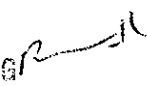
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry D Wilkins, III whose telephone number is 571-272-1251. The examiner can normally be reached on M-Th 10:00am-8:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V King can be reached on 571-272-1244. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Harry D Wilkins, III  
Examiner  
Art Unit 1742

hdw

ROY KING   
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1742